ADHESIVE AND PERIPHERAL SYSTEMS AND METHODS FOR MEDICAL DEVICES

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This application is a Continuation of U.S. patent application Ser. No. 15/155,694, filed May 16, 2016, and entitled Adhesive and Peripheral Systems and Methods for Medical Devices, now U.S. Pat. No 10,245,389, issued on Apr. 2, 2019 (Attorney Docket Number S05), which is a Continuation of U.S. patent application Ser. No. 12/395,185, filed Feb. 27, 2009, and entitled Adhesive and Peripheral Systems and Methods for Medical Devices, now U.S. Pat. No 9,339,603, issued on May 17, 2016 (Attorney Docket Number H03), which is a Continuation of U.S. patent application Ser. No. 11/704,897, filed on Feb. 9, 2007, and entitled Adhesive and Peripheral Systems and Methods for Medical Devices, now U.S. Pat. No. 8,113,244, issued on Feb. 14, 2012 (Attorney Docket Number 1062/E73), each of which are hereby incorporated herein by reference in their entireties. U.S. Pat. No. 8,113,244 claims priority to the following patent applications, each of which is herein incorporated by reference in its entirety:

[0002] Ser. No. 60/772,313, filed Feb. 9, 2006 and entitled Portable Injection System (Attorney Docket No. 1062/E42);

[0003] Ser. No. 60/789,243, filed Apr. 5, 2006 entitled Method of Volume Measurement for Flow Control (Attorney Docket No. 1062/E53); and

[0004] Ser. No. 60/793,188, filed Apr. 19, 2006 entitled Portable Injection and Adhesive System (Attorney Docket No. 1062/E46).

[0005] U.S. Pat. No. 9,339,603 is also a continuation of U.S. patent application Ser. No. 11/704,899, filed on Feb. 9, 2007, entitled Fluid Delivery Systems and Methods, now U.S. Pat. No. 8,414,522, issued on Apr. 9, 2013 (Attorney Docket Number 1062/E70), both of which are hereby incorporated herein by reference in their entireties. U.S. Pat. No. 8,414,522 claims priority to the following patent applications, each of which is herein incorporated by reference in its entirety:

[0006] Ser. No. 60/772,313, filed Feb. 9, 2006 and entitled Portable Injection System (Attorney Docket No. 1062/E42);

[0007] Ser. No. 60/789,243, filed Apr. 5, 2006 entitled Method of Volume Measurement for Flow Control (Attorney Docket No. 1062/E53); and

[0008] Ser. No. 60/793,188, filed Apr. 19, 2006 entitled Portable Injection and Adhesive System (Attorney Docket No. 1062/E46).

[0009] U.S. Pat. No. 9,339,603 is also a Continuation of U.S. patent application Ser. No. 11/704,886, filed on Feb. 9, 2007, entitled Adhesive and Peripheral Systems and Methods for Medical Devices, now U.S. Pat. No. 8,545,445, issued on Oct. 1, 2013 (Attorney Docket Number 1062/E72), both of which are hereby incorporated herein by reference in their entireties. U.S. Pat. No. 8,545,445 claims priority to the following patent applications, each of which is herein incorporated by reference in its entirety:

[0010] Ser. No. 60/772,313, filed Feb. 9, 2006 and entitled Portable Injection System (Attorney Docket No. 1062/E42);

[0011] Ser. No. 60/789,243, filed Apr. 5, 2006 entitled Method of Volume Measurement for Flow Control (Attorney Docket No. 1062/E53); and

[0012] Ser. No. 60/793,188, filed Apr. 19, 2006 entitled Portable Injection and Adhesive System (Attorney Docket No. 1062/E46).

[0013] U.S. Pat. No. 9,339,603 is also a Continuation of U.S. patent application Ser. No. 11/704,896, filed on Feb. 9, 2007, entitled Pumping Fluid Delivery Systems and Methods Using Force Application Assembly, now U.S. Pat. No. 8,585,377, issued on Nov. 19, 2013 (Attorney Docket Number 1062/E71), both of which are hereby incorporated herein by reference. U.S. Pat. No. 8,585,377 claims priority to the following patent applications, each of which is herein incorporated by reference in its entirety:

[0014] Ser. No. 60/772,313, filed Feb. 9, 2006 and entitled Portable Injection System (Attorney Docket No. 1062/E42);

[0015] Ser. No. 60/789,243, filed Apr. 5, 2006 entitled Method of Volume Measurement for Flow Control (Attorney Docket No. 1062/E53); and

[0016] Ser. No. 60/793,188, filed Apr. 19, 2006 entitled Portable Injection and Adhesive System (Attorney Docket No. 1062/E46).

[0017] This application may also be related to Provisional Application No. 60/889,007 entitled "Two-Stage Transcutaneous Inserter" (Attorney Docket No. 1062/E74) which is hereby incorporated herein by reference in its entirety

FIELD OF THE INVENTION

[0018] This application relates generally to adhesive and peripheral systems and methods for medical devices.

BACKGROUND

[0019] Many potentially valuable medicines or compounds, including biologicals, are not orally active due to poor absorption, hepatic metabolism or other pharmacokinetic factors. Additionally, some therapeutic compounds, although they can be orally absorbed, are sometimes required to be administered so often it is difficult for a patient to maintain the desired schedule. In these cases, parenteral delivery is often employed or could be employed.

[0020] Effective parenteral routes of drug delivery, as well as other fluids and compounds, such as subcutaneous injection, intramuscular injection, and intravenous (IV) administration include puncture of the skin with a needle or stylet. Insulin is an example of a therapeutic fluid that is self-injected by millions of diabetic patients. Users of parenterally delivered drugs would benefit from a wearable device that would automatically deliver needed drugs/compounds over a period of time.

[0021] To this end, there have been efforts to design portable devices for the controlled release of therapeutics. Such devices are known to have a reservoir such as a cartridge, syringe, or bag, and to be electronically controlled. These devices suffer from a number of drawbacks including the malfunction rate. Reducing the size, weight and cost of these devices is also an ongoing challenge.

SUMMARY OF THE INVENTION

[0022] In one embodiment of the invention, a repeater system is provided for controlling a medical device. Such a system may include a repeater and a user interface. The repeater may include circuitry (i) for, over a given range, receiving signals from at least one wearable medical device, (ii) for, over the given range, transmitting signals to the wearable medical device, (iii) for, over a longer range